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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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David Delcam

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EXAMINER

WOZNIAK, JAMES S

ART UNIT

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2626

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/019,550	Applicant(s) DELEAM ET AL.	
	Examiner James S. Wozniak	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. In response to the office action from 1/11/2007, the applicant has submitted a request for continued examination, filed 6/21/2007, amending independent claims 1 and 11, while arguing to traverse the art rejection based on the limitation regarding the buffer condition that uses concatenation to reduce two frames into a pseudo-frame having a length less than or equal to a single frame (*Amendment, Pages 11-15*). Applicant's arguments have been fully considered, however the previous rejection is maintained due to the reasons listed below in the response to arguments.
2. In response to amended claims 1 and 11, the examiner has withdrawn the previous claim objections directed towards minor informalities.
3. In response to amended claim 1, the examiner has withdrawn the previous 35 U.S.C. 112, first paragraph rejection directed towards a single means/step claim.
4. In response to amended claims 1 and 11, the examiner has withdrawn the previous 35 U.S.C. 112, first paragraph rejection directed to the written description requirement.

5. In response to amended claims 1 and 11, the examiner has withdrawn the previous 35 U.S.C. 112, second paragraph rejections.

Response to Arguments

6. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

With respect to **Claims 1 and 11**, the applicant argues that Shlomot et al (*U.S. Patent: 5,694,521*) (*hereinafter*, “*Shlomot II*”) fails to teach “implementing concatenation processing on two successive frames to compact the two frames into a pseudo-frame of length less than or equal to one frame” (*Amendment, Page 10*). More specifically, the applicant argues that the speech modification scheme for fast playback utilized by Shlomot II is directed to compressing two excitation signal templates and does not teach or suggest “that two successive frames are concatenated together” (*Amendment, Pages 11-14*). Thus, the applicant argues that Shlomot II fails to teach frame-based concatenation processing as is required in the claimed invention.

In response, the examiner points out that it is the combination of Shlomot et al (*U.S. Patent: 5,699,481*) (*hereinafter*, “*Shlomot I*”) and Shlomot II that discloses the aforementioned claim limitation. Shlomot I discloses altering speech data in response to various buffer conditions (*Col. 6, Lines 14-56; and Col. 7, Lines 10-23*). In Shlomot I the basic unit of speech data correction is a frame, specifically a coded speech frame in a coded speech package or CSP (*Col. 6, Lines 38-56*). Shlomot I also mentions that concatenation processing can be used in

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response to buffer filling levels (*Col. 7, Lines 24-61*). Thus, it is Shlomot I that discloses the frame-based processing recited in the claimed invention.

Although Shlomot I discloses additional frame-based processing used at further filling levels (*Col. 7, Lines 10-23*), Shlomot I does not specifically suggest that the further processing comprises concatenation used to compact two successive frames into a pseudo-frame having a reduction ratio greater than or equal to two, as is recited in the claimed invention. Shlomot II, however, recites a fast speech data playback method that compresses two consecutive speech segments into a single speech segment by a ratio great than or equal to two (*2:1 ratio, Col. 4, Line 40- Col. 5, Line 14*). As was pointed out by the applicant (*Amendment, Pages 11-14*), Shlomot II teaches the combination or concatenation of excitation templates. The examiner notes, however, that the excitation templates taught by Shlomot II correspond to speech data, specifically coded speech data (*Col. 1, Lines 29-36*). As was previously mentioned, Shlomot I performs processing on frames in a *coded* speech package comprising similar excitation signals (*modification/processing of excitation signals, Col. 5, Lines 23-32*). Additionally, in Shlomot II, templates are defined as being coded speech data of a finite time length (*Col. 4, Lines 40-61*), while in Shlomot I processing is based on frames, which is a data structure also having a finite time length (*Col. 1, Lines 52-61*). Thus, since Shlomot I discloses a frame-based manipulation scheme, wherein a frame comprises excitation signals, and Shlomot II teaches that two successive finite excitation signal segments (*frames in the case of Shlomot I*) can be combined to form a single template for fast playback, the combination of Shlomot I and Shlomot II discloses the aforementioned claim limitation.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning (*Amendment, Page 14*) it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The applicant further argues that Shlomot I is solely directed to processing speech signals, whereas amended claim 1 encompasses any type of sound signal (*Amendment, Page 14*). In response, the examiner notes that speech is a sound signal, and thus, would correspond to the claimed "sound signal". It does not appear that the specification supports "any type of sound signal" because only speech and music sound types are disclosed (*Page 1*). Also, it appears that in the claimed invention is directed to speech signal processing due to the recited "voice activity detection" in the claims.

In response to applicant's arguments against the references individually (*i.e., Shlomot II does not teach an asynchronous transmission system as encompassed by amended claim 1*), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The teaching of an asynchronous transmission system is provided by the Shlomot I reference (*Col. 8, Lines 6-17*).

In response to the applicant's arguments that there is no motivation to combine the teachings of the prior art of record and that the prior art of record cannot be combined without

considerable effort (*Amendment, Pages 15-16*), see that, as was pointed out above, both Shlomot I and II are directed to processing segments of coded speech data comprising excitation signals. Also, Shlomot II provides the benefit of achieving faster high quality playback of received speech data, thus implementing a safeguard for more quickly clearing frames out of the buffer taught by Shlomot I if a congestion period persists (*see Prior OA, Page 8 and Shlomot I, Col. 7, Lines 10-23*). Thus, the combination of Shlomot I and II is proper.

The art rejections of the dependent claims are traversed for reasons similar to Claims 1 and 11 (*Amendment, Pages 16-17*). In regards to such arguments, see the above response to arguments directed to claims 1 and 11.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1 and 9-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*).

With respect to **Claim 1**, Shlomot (*US 5,699,481*) discloses:

A method of managing the decoding and playback of a sound signal in an asynchronous transmission system (*buffer management in an asynchronous coded speech packet transmission system, Col. 4, Lines 16-36*), comparing a filling level of a received sound signal with at least

one threshold to detect any overabundance of the filling level of at least one of a first buffer memory and a second buffer memory at the inlet or outlet of a decoding block (*buffer at a decoder input, Fig. 1b, having various filling threshold levels (S, N, F), Col. 6, Lines 14-56*);

Implementing voice activity detection to eliminate non-active frames whenever the filling level lies between a first threshold and a second threshold (*deleting silence frames between slow and normal buffer levels, Col. 6, Lines 13- Col. 7, Line 23*); and

If the filling level lies between the second threshold and a third threshold, further processing is implemented on the frames (*further set of thresholds further process additional frames, Col. 7, Lines 10-23*).

Although Shlomot (US 5,699,481) contemplates additional frame processing based on a set of thresholds, Shlomot (US 5,699,481) does not specifically suggest that the further processing comprises concatenation processing used to compact two successive frames into a pseudo-frame having a reduction ratio greater than or equal to two, however Shlomot (US 5,694,521) recites a fast speech data playback method that compresses two consecutive speech segments into a single segment, irrespective of the segment content, by a ratio greater than or equal to 2 (*Col. 4, Line 40- Col. 5, Line 14*).

Shlomot (US 5,699,481) and Shlomot (US 5,694,521) are analogous art because they are from a similar field of endeavor in coded speech playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (US 5,699,481) with the segment compression means taught by Shlomot (US 5,694,521) in order to achieve faster high quality playback of received speech data (*Shlomot (US 5,694,521), Col. 1, Lines 57-64*), thus implementing a safeguard for more quickly clearing frames out of the buffer

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taught by Shlomot if a congestion occurrence persists (*Shlomot (US 5,699,481, Col. 7, Lines 10-23)*).

With respect to **Claims 9-10**, *Shlomot (US 5,699,481)* discloses threshold adaptation based on an additional number of received time frames during a congestion period (*Col. 7, Lines 10-23*).

9. **Claims 4-6 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over *Shlomot et al (U.S. Patent: 5,699,481)* in view of *Shlomot et al (U.S. Patent: 5,694,521)*, and further in view of *Cohen et al (U.S. Patent: 5,825,771)*.

With respect to **Claim 4**, *Shlomot (US 5,699,481)* in view of *Shlomot (US 5,694,521)* teach the method for buffer control as applied to Claim 1. *Shlomot (US 5,699,481)* and *Shlomot (US 5,694,521)* do not teach that buffer control includes the detection of a missing or erroneous frame for fake frame generation, however *Cohen* recites a means for detecting and filling a frame gap resulting from a missing frame (*Col. 7, Line 66- Col. 8, Line 9*).

Shlomot (US 5,699,481), *Shlomot (US 5,694,521)*, and *Cohen* are analogous art because they are from a similar field of endeavor in coded audio playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of *Shlomot (US 5,699,481)* in view of *Shlomot (US 5,694,521)* with the means for detecting and filling a frame gap taught by *Cohen* in order to implement a means for missing packet compensation (*Cohen, Col. 6, Lines 55-61*).

With respect to **Claim 5**, *Cohen* further recites:

When the decoding block implements its decoding processing in cyclical manner relative to the content of the first buffer memory, detection of any missing or erroneous frame or of any

absence of samples to play back is implemented at the same cyclical frequency, said detection taking place far enough in advance relative to the decoding process to make it possible to generate a fake frame (*detecting and decoding audio samples at a converting frequency, Col. 7, Line 57- Col. 8, Line 9*).

With respect to **Claim 6**, Cohen further recites:

A fake frame is not generated when a missing or erroneous frame is detected for a frame on which an absence of samples has already been detected (*removing artificial frames prior to generation at a decoder, Col. 9, Lines 21-25*).

Claim 11 contains subject matter similar to claim 1, and thus, is rejected for the same reasons. Shlomot (*US 5,699,481*) additionally recites speech playback at a speaker (*Col. 1, Lines 45-52*). Although well known in the art, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) do not specifically suggest the use of a playback buffer. Cohen, however, further discloses a playback buffer (*Fig. 2, Elements 15 A and B*) to ensure that an audio device always has a continuous stream to play (*Cohen, Col. 2, Lines 45-50*).

10. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), further in view of Cohen et al (*U.S. Patent: 5,825,771*), and further in view of Chan (*U.S. Patent: 5,897,613*).

With respect to **Claim 7**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) and further in view of Cohen teach the method for buffer control utilizing missing frame detection and correction as applied to Claim 4. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) and further in view of Cohen do not teach the use of a previously stored frame to

determine the generation of a correction frame, however, Chan recites utilizing a previous frame to determine the generation of a repeated frame (*Col. 3, Lines 31-56; and Col. 5, Lines 25-30*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), Cohen, and Chan are analogous art because they are from a similar field of endeavor in coded audio playback. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) and further in view of Cohen with the concept of utilizing a previous frame to determine the generation of a repeated frame taught by Chan in order to provide a means for constant data stream generation in the case of discontinuous transmission (*Chan, Col. 3, Lines 31-56*).

11. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), and further in view of Narayan (*U.S. Patent: 5,642,466*).

With respect to **Claim 8**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) teaches the method for buffer control utilizing speech segment combination as applied to Claim 1. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) do not teach the weighting scheme for combining speech segments as recited in claim 8, however Narayan discloses two weighting ramps that emphasize a beginning of a first speech segment and an ending of a second speech segment (*Col. 11, Line 20- Col. 12, Line 56; and Fig. 9*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), and Narayan are analogous art because they are from a similar field of endeavor in audio synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings

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of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) with the emphasis means taught by Narayan in order to implement blending for discontinuity smoothing (*Narayan, Col. 11, Lines 22-30*).

12. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Shlomot et al (*U.S. Patent: 5,699,481*) in view of Shlomot et al (*U.S. Patent: 5,694,521*), and further in view of Pan et al (*U.S. Patent: 5,696,875*).

With respect to **Claim 12**, Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) teaches the method for buffer control utilizing speech segment combination as applied to Claim 1. Shlomot (*US 5,699,481*) and Shlomot (*US 5,694,521*) do not teach averaging combined speech segments, however, Pan discloses a means for speech segment averaging (*Col. 4, Lines 32-54*).

Shlomot (*US 5,699,481*), Shlomot (*US 5,694,521*), and Narayan are analogous art because they are from a similar field of endeavor in audio synthesis. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to modify the teachings of Shlomot (*US 5,699,481*) in view of Shlomot (*US 5,694,521*) with the averaging means taught by Pan in order to achieve a smoother transition between successive speech segments (*Pan, Col. 4, Lines 32-54*).

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:


Yamauchi (*U.S. Patent: 5,896,099*)- discloses a system for audio buffer control.

Katseff et al (*U.S. Patent: 6,301,258*)- discloses a method of jitter buffer control that adjusts an audio playback rate.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached at (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James S. Wozniak
8/30/2007